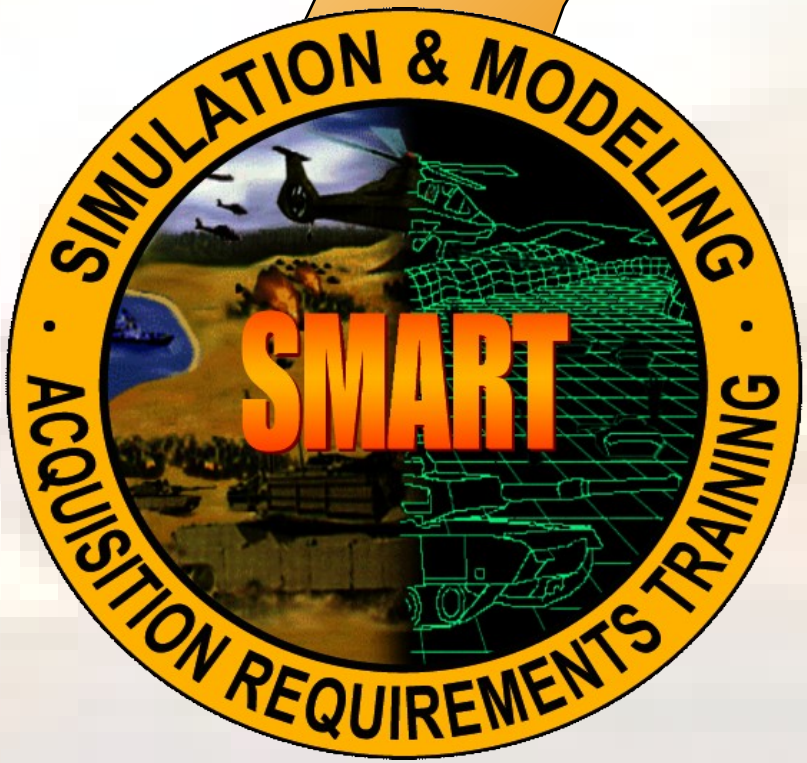
Simulation and Modeling for Acquisition, Requirements and Training (SMART)

"SBA is SMART for the Army"

Agenda

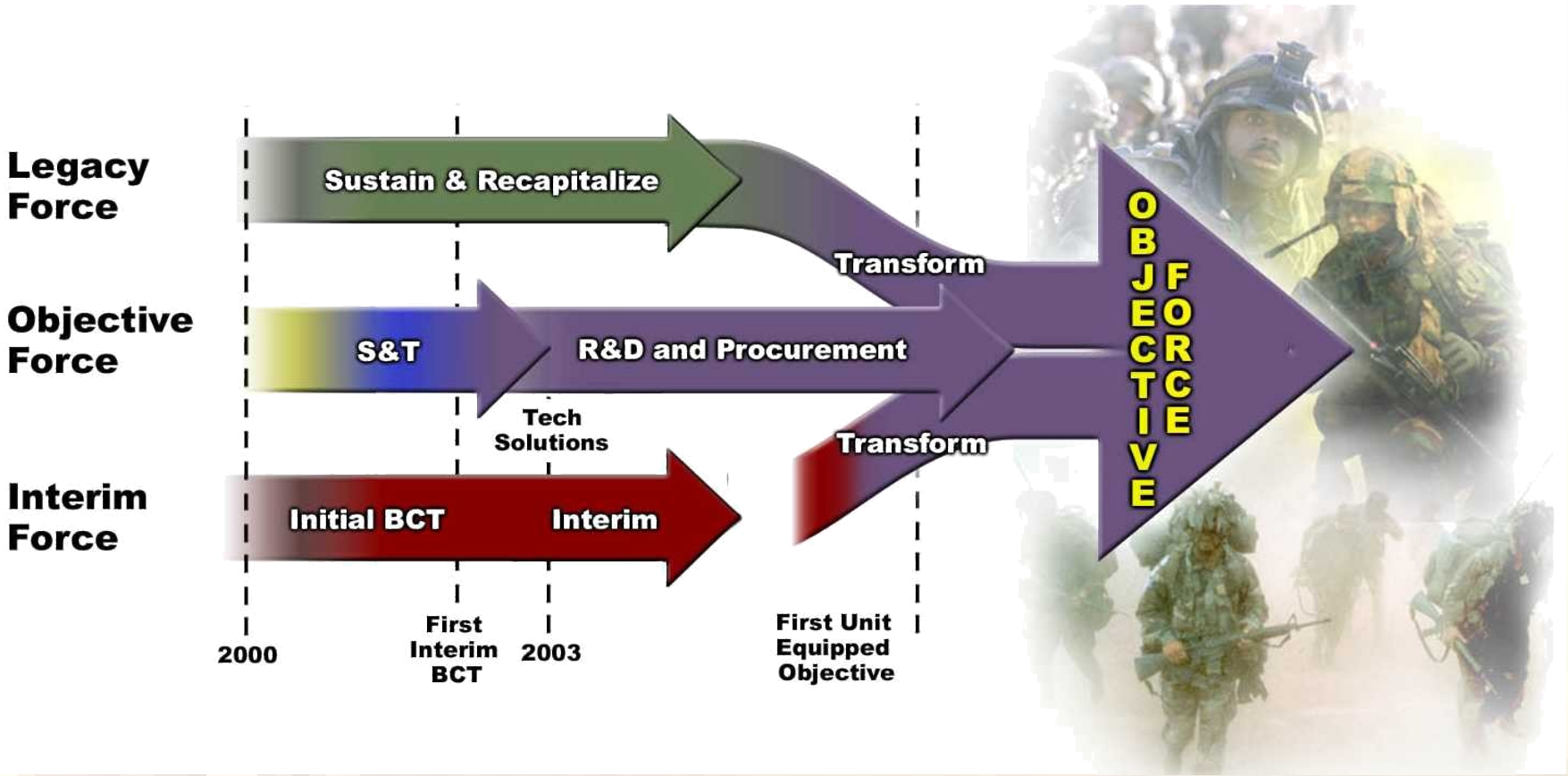
Time	Topic	Presenter
0900 –1000 Lunceford	SMART Overview	Mr. Dell
1000 – 1015	Questions and Answers	Mr. Dell Lunceford
1015 – 1030	Break	
1030 - 1130	SMART Federations	Ken Welker
1130 –11145	Questions and Answers	Ken Welker

SMART Definition



SMART is a process in which we capitalize on Modeling and Simulation (M&S) technology to address the issue of system development and life-cycle costs through the combined efforts of the requirements, training and acquisition communities.

The Army Transformation



Responsive, Deployable, Agile, Versatile, Lethal,
Survivable and Sustainable

SMART: A Little Historical Perspective…

1997…New MILDEP briefed on OSD Simulation Based Acquisition (SBA) Initiative

"SBA…this is not about sm business…give me a new name; one that captures the idea of collaboration among the 3 communities"

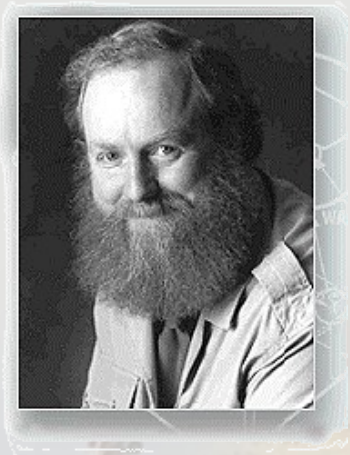
LTG Paul J. Kern, Military Deputy to the Assistant Secretary of the Army (Acquisition, Logistics and Technology)

SMART: A Little Historical Perspective…

2000…Observations by the Army Acquisition Executive and the former President of Disney Imagineering Creative Technology…

"The Army has made significant progress in the last 3 years with SMART…first there was the 'get out of my office I don't want to hear about this' phase… "

Hon. Paul J. Hoeper



Mr. Bran Ferren

"…Then the long period of silence with no opinion and comment…"

"…and now we are moving into the 'if I don't get on board quickly, I am going to be left behind' phase."

SMART Vision

Be a world leader in Modeling and Simulation to continuously improve Army effectiveness through a disciplined collaborative environment in partnership with industry, government, and academia.

Larry R. Ellis
Lieutenant General, GS
Deputy Chief of Staff for Operations and Plans

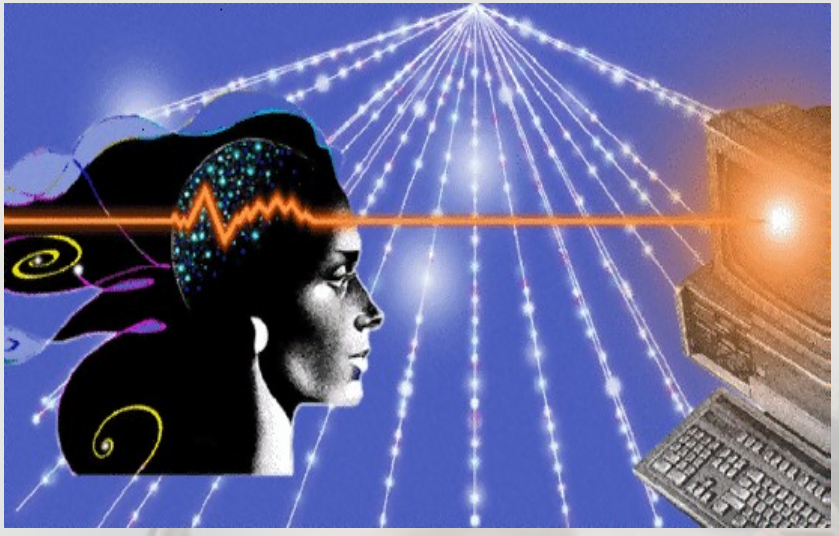
Paul J. Kern
Lieutenant General, GS
Military Deputy to the Assistant Secretary of the Army (Acquisition, Logistics and Technology)

Walter W. Hollis
Deputy Under Secretary of the Army (Operations Research)

SMART is Really About Collaboration…

Collaborative Engineering Environments…

Collaboration across Functional Areas…

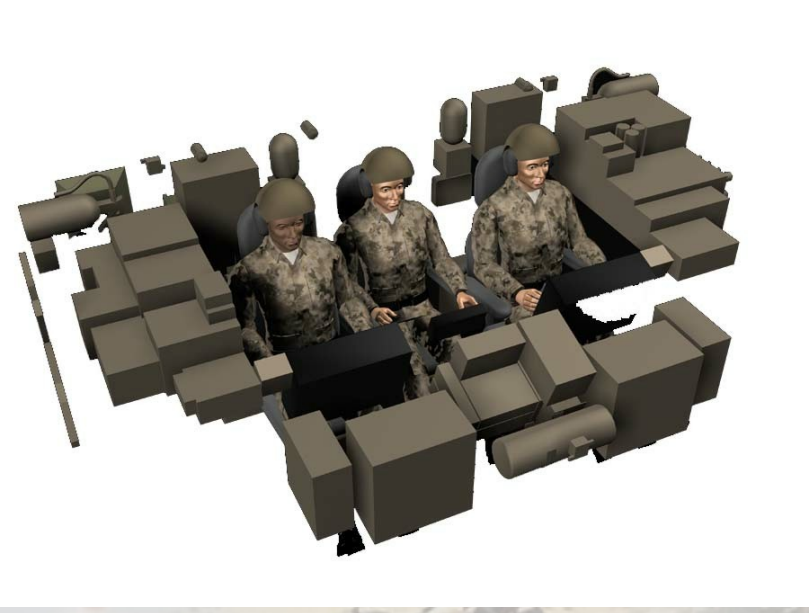


Collaboration with Contractors…

Collaboration with the Entertainment Industry…

Collaboration with Other Government Organizations…

Integrated Digital Environments



- Distributed Product Description
- Data Protection/Security
- Data Access
- Causal Networking

SMART Collaboration across Functional Areas…

⇒ **Combat Development**

⇒ **Engineering/Design / Manufacturing**

⇒ **Test & Evaluation**

⇒ **Logistic Support**

⇒ **Training**

- **Training and Continuous**

- **Optimize Across All Attributes Vice Against One Another**

SMART Collaboration with Contractors…

- Simulation Based Concepting
- Simulation Based Evaluation
- Simulation Based Down-Select
- Tools for System of Systems Complexity

SMART Collaboration w/ Entertainment Industry

- **Immersive Environments**
- **Urban Environment Simulation**
- **Stability and Support Operations Simulation**

SMART Collaboration w/ Government Organizations

- National Institute of Standards and Technology (NIST)
- NASA Partnership

- CAD Interoperability
- Total Ownership Cost Analysis
- Robotic Technology Simulation

NIST
National Institute of Standards and Technology
. . .working with industry to develop and apply technology, measurements and standards

What Will SMART Achieve?

- **Reduced Total Ownership Cost (TOC), Time to Initial Operating Capability (IOC), and Logistics Tail**

- **Increased Supportability, Maintainability, and Military Worth**
- **More Effective, Cost Efficient Training at Individual, Crew, and System Level**

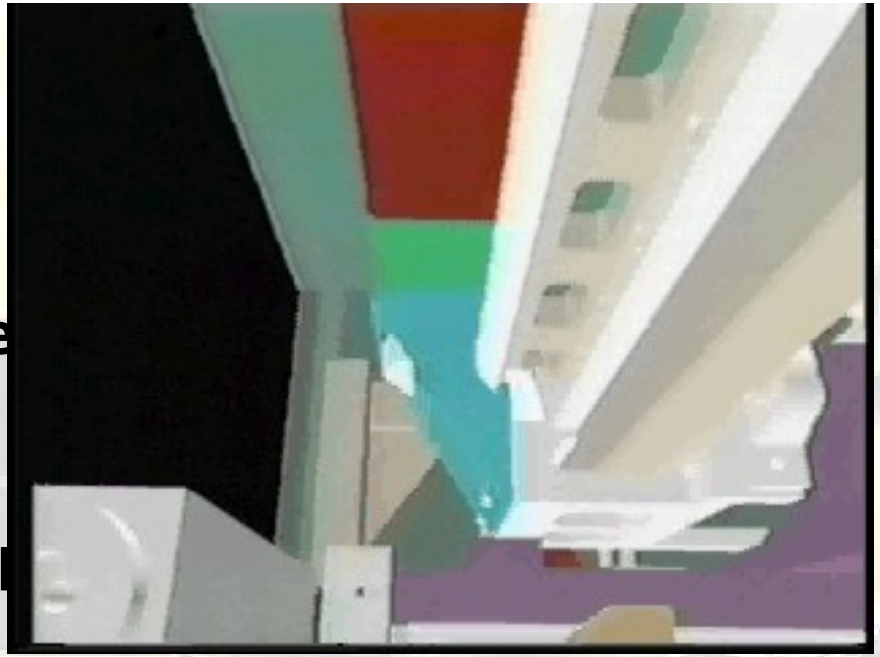
What is the Role of the Requirements Community?

"Context is worth 50 IQ points."

Alan Kay, Walt Disney Imagineering Fellow

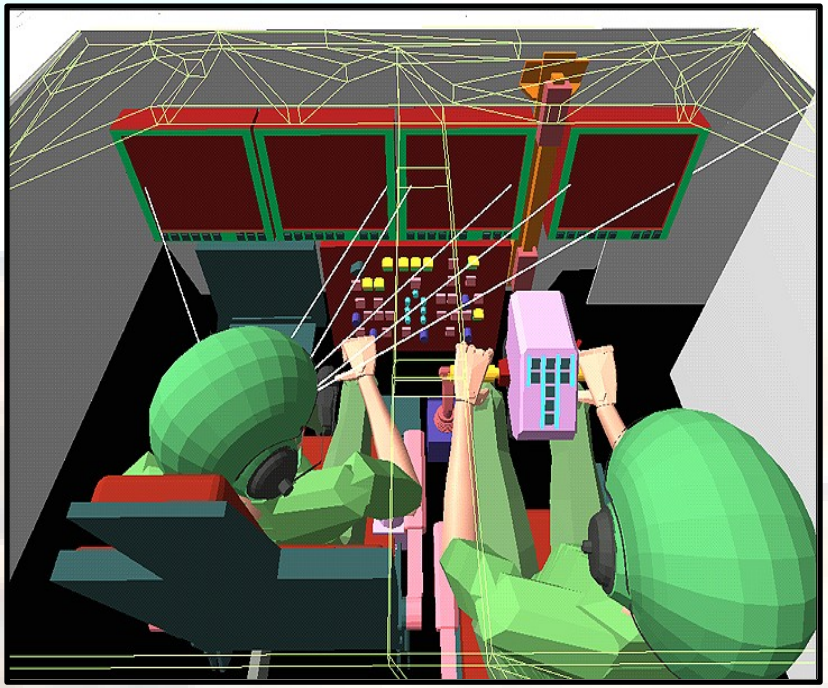
- **Provide Continuous User Context**
- **Cost/Performance Tradeoff Analy**
- **Early ID of Unrealistic Requireme**
- **Early ID of Enabling Technologies**
- **Earlier Opportunity to Address Life Cycle Cost**
- **Use Virtual Prototypes to Aid Threat Assessment and Mission Area Analysis**

What is the Role of the Training Community?



- **Provide Early and Continuous Training Conte**
- **Assess Impact of TTP and Doctrine on Design Conce**
- **Trained Crew Simultaneous with 1st Unit Off Production Line**
- **Re-use of Software and Simulation to Support Embedded and Distributed Training, Operation Planning, Course of Action (COA) Analysis; Part of Deployed Capability**

Test and Evaluation Roles in SMART



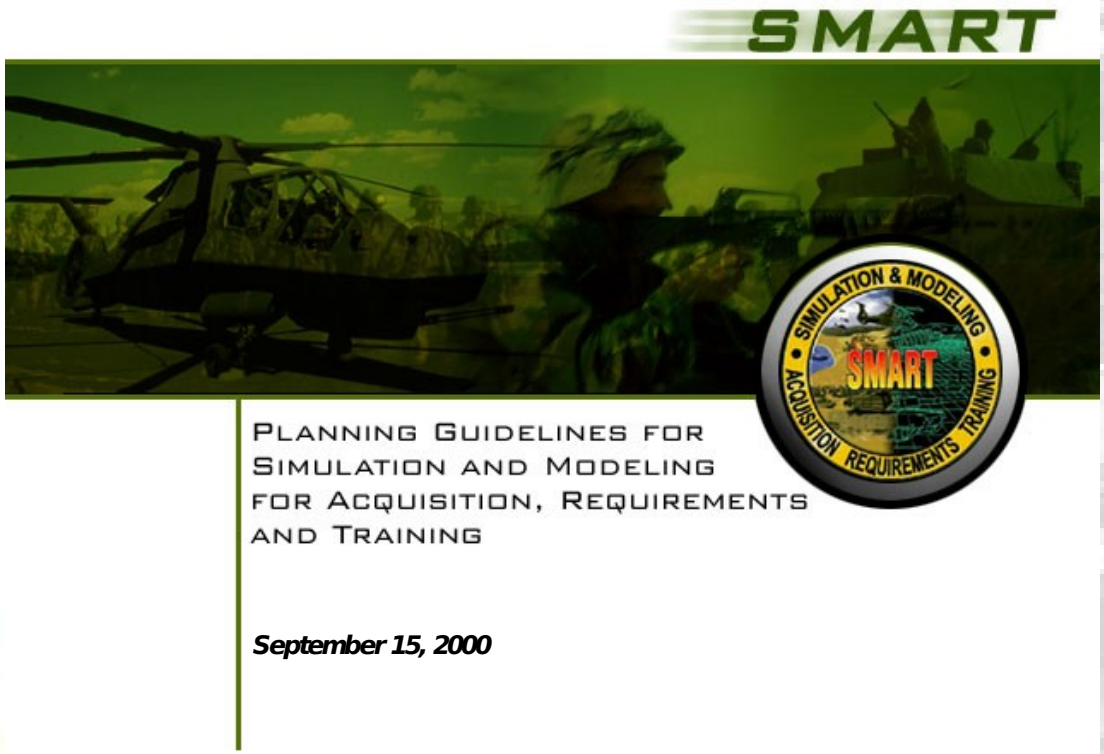
Design Model for Assessing MANPRINT for Grizzly Breacher

- Incorporate Long Term Planning for the Right mix of Simulation and Testing
- Evolve the Virtual T&E Infrastructure
- Conduct “What-if” Drills for Early Development of T&E Plans and Scenarios
- Accelerate the Synergies Between the Testing and Training Communities
- Ensure T&E Community Participation in all M&S Planning and Accreditation to Facilitate Acceptance

Planning Guidelines for SMART

The "Guidelines" Preliminary Draft was released at the Jan 00 SMART Conference, with final approval given by the AMSEC co-chairs in August.

Major Changes Over the Original Versi



√ **TRADOC revised TP 71-9 to have preparation of SSPs begin as part of the Integrated Concept Team (ICT) process. SSP is then passed off to materiel developer when program office is stood up.** ***(SSPs become living documents!)***

√ **Revised Guidance focuses on how we can *SMARTly* develop M&S with close attention to possibilities of re-use, commonality, credibility**

Flagship Programs

- **Crusader** program operates within an Integrated Digital Environment that links the Program Management Office, Contractor, Research Center, assorted test ranges, and other activities

- **Apache** poised to re-assess basic load, capitalize on product improvements to re-engineer logistic support

- **Future Scout Cavalry System** ideally poised to benefit from M&S and Systems Engineering

CCTT can be Employed to Explore Doctrine and
TTP for Future Systems to Influence Final Design

FCS Program Mission…

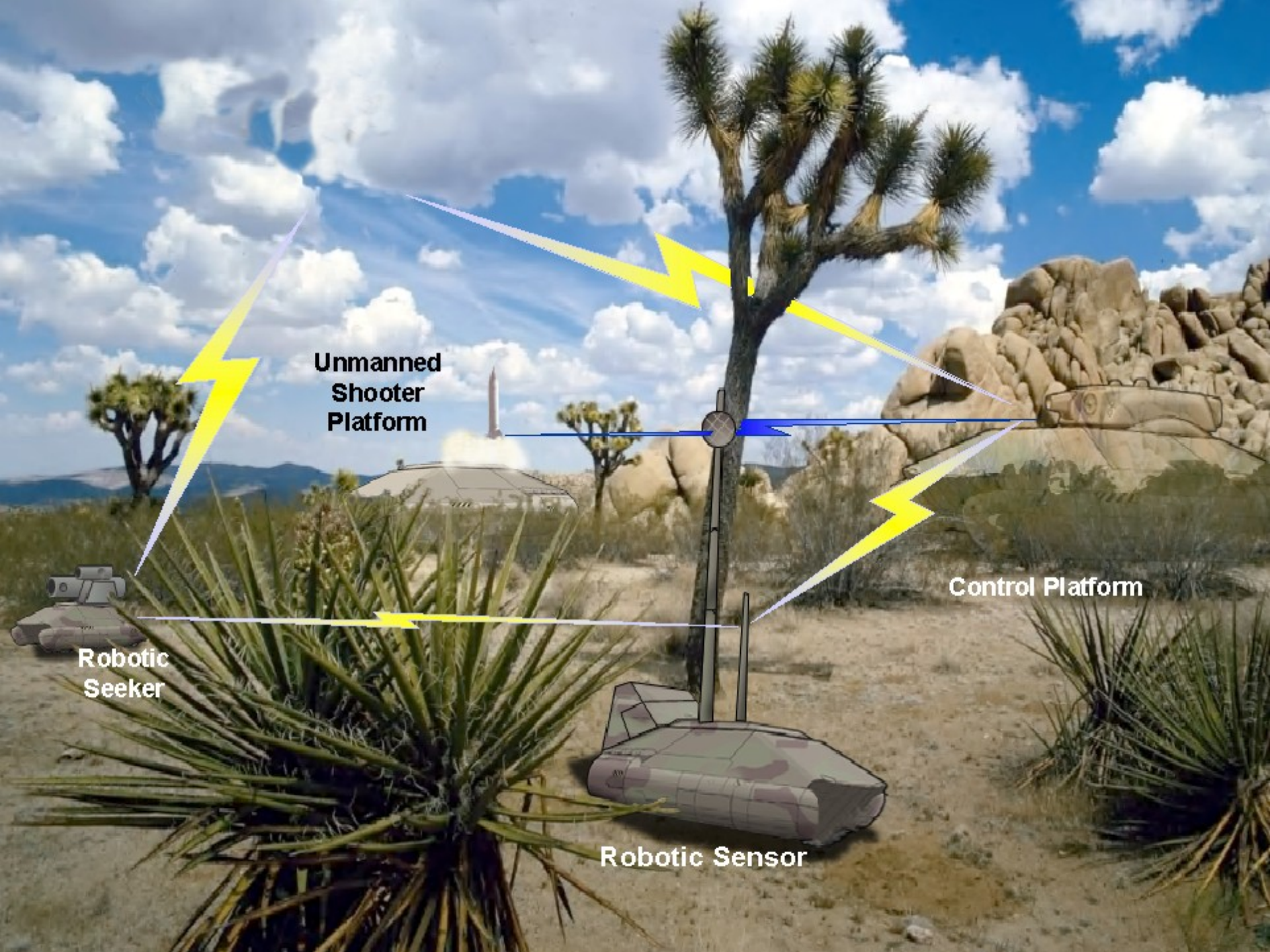
- To develop concepts for, model, and prototype a rapidly deployable lightweight, Multi-Mission Combat System to be fielded starting in **2012**!
- To support the Army's goal to field an affordable system capable of overwhelming lethality, strategic deployability, self-sustainment, and high survivability
- To be a multi-functional, multi-mission re-configurable system of systems to maximize:
  - Joint operability
  - Strategic transportability, and deployability
- Joint DARPA / Army program that will be a SMART managed program

FCS Is…

A system of systems capable of multiple roles, overwhelming lethality, strategic deployability, self-sustainment, and high survivability

An integrated program of innovations with revolutionary requirements for:

- **C4I**
- **Interoperability**
- **Lethality**
- **Survivability**


Unmanned
Shooter
Platform
Control Platform
Robotic
Seeker
Robotic Sensor

The Way Ahead …

The SMART Execution Plan will serve as the veh to guide the institutionalization of SMART throughc the Army.

- **Approved by the Army Model and Simulation Executiv Council co-chairs or 6 November 2000.**
- **Provides justificat for a SMART budget**

The Way Ahead …

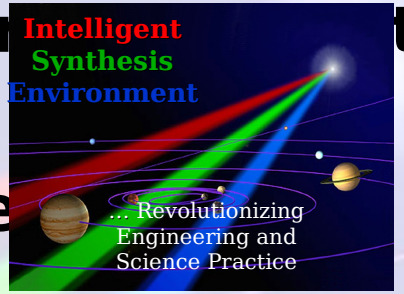
The **Army Transformation Campaign Plan** is t
mechanism for integrating and synchronizing the
implementation of the Army Vision within the Army

Mission: Transform *The Army* into a force that is
strategically responsive and dominant at every poi
on the spectrum of operations.

SMART is the enabler to allow the Army to compl
the Transformation process within the established
timelines. Coordination has been conducted to
incorporate 45 of the 51 tasks in the **SMART Exec
Plan** into the Transformation Campaign Plan.

The Way Ahead …

ARMY/NASA Partnership – Memorandum to cooperate in the development of technology for advanced engineering environme tion and training



SMART/ISE:

- **ISOWAN Security Software**
- **RDEC HLA Federation**
- **Army/NASA Virtual Integration Laboratory**
- **ICT immersive training environme**

Intelligent Systems Agreement:

- **Course of Action Analysis**
- **Mission/Operation Rehearsal**
- **FCS intelligent robotics technology exchange**

SMART 2001 Conference

Location: Orlando, Florida

Date: 16-19 April 2001

Purpose: Demonstrate how Modeling and Simulatio can help the Acquisition, Requirements and Operat communities do their jobs to achieve the Army Transformation more effectively and efficiently.

Audience: Acquisition, Requirements and Operation Communities, NASA, and Industry

Will feature speakers, panels, M&S demonstrations and a tour of NASA simulation efforts at the Space